Speech Pathology

Background

Speech Pathology's research protocol, "The Effectiveness of Voice Therapy Using Telecommunications Technology" is part of the Department of Surgery's initiative to establish a telemedicine-based Otolaryngology Service over the next three years. The goals of the funding year 1998 were to: 1) establish a speech pathology telehealth rehabilitation protocol for patients with voice disorders; and 2) collect treatment outcomes data to compare the effectiveness of voice therapy provided with the clinician and patient in the same room vs. at a distance (with the clinician in one room and the patient in another room interacting via a video camera and monitor).

Approximately 15 million Americans (1 in 20 persons) have speech-language disorders that may significantly impair their ability to communicate. Without proper diagnosis and treatment of a speech-language disorder, an individual's quality of life and standard of living could be severely impacted.

TAMC's Speech Pathology staff provided care to MEDEVAC patients including Active Duty personnel stationed in Japan, Guam, Korea, Okinawa and Maui. Speech Pathology services for Active Duty personnel and their dependents are limited or nonexistent in the Pacific Basin because of personnel and geographic barriers.

Successful implementation of this telehealth application will allow for remote treatment of voice disorders and has important implications for treating other communication disorders, particularly those that require intensive, long-term rehabilitative follow-up.

The American Speech-Language-Hearing Association acknowledges that telehealth has great relevance to speech-language pathologists and audiologists, especially those who provide care to rural, remote and under-served populations where services are not available or accessible.

However, there is a need to: 1) develop protocols and clinical guidelines for providing services using telecommunications technology and, 2) conduct research to establish validity and prove effective treatment outcomes.

Organization

Primary Investigator - Pauline Mashima
Co-Investigator - CDR Michael Holtel, M.D.
Co-Investigator - Deborah P. Birkmire, PhD
Co-Investigator - Mark Syms, M.D.
Co-Investigator - COL Lawrence Burgess, M.D.
Co-Investigator - LTC Leslie Peters, PhD
Project Manager – Lisa Okinaga

Research Question

To investigate the potential of telehealth in meeting the needs of under-served populations with communication disorders in remote regions and in addressing issues of treatment efficacy with an innovative service delivery model for speech-language pathology.

Goals and Objectives

Objectives-

To collect data to establish the validity of using video-conferencing for treating patients with voice disorders.

To evaluate clinical outcomes compiled during the first phase of the study to propose future and expanded applications.

Goal-

To evaluate the feasibility and effectiveness of an innovative service delivery model using telecommunications technology for speech-language pathology.

Current Status

a) Primary Accomplishments-

1. Continued voice rehabilitation protocol and collection of outcomes data.
2. Continued research collaboration with Dorothy Craven and Dr. Lois Weiss, professors at the University of Hawai‘i who specialize in voice disorders.
3. Provided multidisciplinary evaluation with otolaryngology using digital video stroboscopy system for two MEDEVAC patients from Japan.
4. Provided multidisciplinary follow-up with Health Psychology using telehealth service delivery model to patient stationed in Guam.
5. Continued data analysis.
6. Began report writing.

b) Project Timelines

August 1998 to March 2000: Enroll patients
August 1998 to April 2000: Conduct Experiment
August 1998 to April 2000: Analyze Data
April 1999: Presented paper at ATA conference
November 1999: Collaborate with U.H. Voice Specialists
December 1999: Purchase Stroboscopy System
January 2000: Install Stroboscopy System
March 2000 to April 2000: Write Report

Strategic Direction

- The goal of the first phase of the study is to evaluate treatment outcomes for a telehealth voice rehabilitation protocol delivered under two conditions:
  1) The patient and clinician interacting within the same room; and
  2) The patient in one room and the clinician situated in another room interacting live via a video camera and monitor.
- During the second phase we would like to begin tele-practice operations at remote sites and evaluate effectiveness of data transmission capabilities (e.g., voice samples using MultiSpeech software program; video stroboscopic data in evaluating voice disorders with Otolaryngology).
- During the third phase, we would like to expand clinical protocols to include diagnosis and treatment of patients with neurogenic communication and swallowing disorders. Our goal during this phase will be to provide interdisciplinary care by working cooperatively with other disciplines and services involved in telemedicine.

Military Significance

Active duty personnel in need of voice therapy are MEDEVAC'd to TAMC. The course of treatment is generally less effective because of restrictions in duration of care and follow-up. This telehealth vocal rehabilitation program has the potential of providing therapy at a distance with substantial savings in cost, travel time, and absence from duty station.

Business Associations

Corporate Partnerships

Kay Elemetrics- Software and Hardware

MedRx, Inc.- Hardware

Government Partnerships

TAMC IMD- network assistance, software assistance, hardware assistance

Project Security

System Security- Systems are hardwired to each other. Visipitch is a stand-alone system.

Summary

Speech Pathology's telemedicine protocol utilizes state-of-the-art and "cutting edge" technology to support TAMC's mission of ensuring readiness through the delivery of quality health care and vision of becoming the premier health care system in the Pacific Basin. We will have the capability to collaborate with physicians and clinicians at-a-distance on challenging cases and provide consultative and rehabilitative services for patients in remote sites.